

REMARKS

In the Final Office Action, the Examiner rejects claims 2-3 under 35 U.S.C. 103(a) as being unpatentable over Kazuo (JP 06-128671); rejects claims 2-3 under 35 U.S.C. 103(a) as being unpatentable over Suarez et al. (US 6,106,643) in view of any one of Bieber et al. (US 3,619,182), Olson (US 3,619,183), Baldwin et al. (US 3,918,964) or Peterson (US 3,984,239); rejects claims 2-3 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claim 12 (not claim 15) of copending application No. 10/546,130.

Applicants note that, in order to advance prosecution, the term “comprising” has been replaced with the term “consisting of” in claim 2.

Rejection of Claims 2-3 as being unpatentable over Kazuo et al. (JP 06-128671)

The Examiner rejects the present application as being unpatentable over the Kazuo reference, noting the presence of N shown in Tables 1 and 2 of the reference, for the reasons that the alloy of the reference includes N in the same range as that of the present application, even though the Kazuo reference does not describe the presence of nitrogen in the description. The Si content in the examples of the Kazuo reference is within a range of 0.32 to 0.48wt%, which is orders of magnitude different than the Si content claimed in the present application.

Compositions of the Ni-base alloy of the present application and the Ni-base alloy of the Kazuo reference, represented by Example 3 are tabulated in Table 1, shown below.

Table 1

Component	Present application (wt%)	Kazuo (JP 06-128671) Example 3 (wt%)
Cr	43-50	39.15
Mo	0.1-2	0.64
Mg	0.001-0.05	0.04
N	0.001-0.04	0.013
Mn	0.05-0.5	0.46
Fe	0.05-1.0	Bal.(8.23)

(b) Ti and Al

The Kazuo reference indicates that less than 0.5wt% of Ti and Al are positively introduced into the alloy, respectively, wherein Examples in Tables 1 and 2 indicate that Al is introduced in a range 0.1 to 0.18wt% and the Ti is introduced in a range of 0.18 to .033wt%, in order to improve hot working nature and to improve cleanliness of the alloy, as described in paragraphs [0017] and [0018] of Kazuo.

However, the Ni base alloy of the present application intentionally excludes introduction of Ti and Al, since Ti and Al components tend to form intermetallic compounds in the Ni-base alloy, such as Ni_3Al , which deteriorate the phase stability of the alloy. Therefore, because these elements of Al and Ti are harmful elements which deteriorate the corrosion resistance relative to supercritical environment containing inorganic acids, these components are excluded from the Ni-base alloy of the present application.

As described above, the Ni-base alloy of the present application differs from those disclosed in the Kazuo reference.

(2) Rejection of claims 2 and 3 as being obvious over Suarez et al. (U.S. Pat. No. 6,106,643) in view of Bieber et al. (U.S. Pat. No. 3,619,182), Olson (U.S. Pat. No. 3,619,183), Baldwin et al., (U.S. Pat. No. 3,918,964) and Peterson (U.S. Pat. No. 3,984,239).

In Applicants' Response dated September 7, 2006, a response to the rejection of claims 2 and 3 over those references are provided. However, the Examiner notes that the applicants presented no evidence regarding the fact that the presence of calcium would render the alloy of Sauerz not to have excellent corrosion resistance.

When Ca is incorporated in the Ni-based alloy, Ca is present in the alloy as elemental Ca, or a variety of intermetallic compounds such as Ni_2Ca , Ni_3Ca , Ni_7Ca_2 , Ni_5Ca , are formed and the elemental Ca and these intermetallic compounds are segregated and unevenly distributed at the grain boundary.

Ca is an element having a high ionic tendency next to Na and it is easily oxidized for thermodynamic stabilization under present of H₂O. Accordingly, when the Ni base alloy is under residual stress or under application of an external force, the stress corrosion cracking may be generated, starting from the grain boundary corrosion by oxidization. Therefore, Ca is a harmful component for a Ni-base alloy composition of the present application, which has an object of Ni-base alloy of the present application and the alloy composition is not disclosed nor rendered obvious over the Saurez reference in view of other references.

(3) Double patenting

The Examiner rejected claims 2 and 3 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 12 of copending Application No. 10/546,130, PCT application of which is filed on February 20, 2004.

While Applicant's respectfully disagree with the Examiner's rejection, submitted herewith is a terminal disclaimer in connection with U.S.S.N. 10/546,130. This Terminal Disclaimer is filed solely for the purposes of advancing prosecution of this application.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By 

Jason C. Chumney

Registration No.: 54,784

DARBY & DARBY P.C.

P.O. Box 5257

New York, New York 10150-5257

(212) 527-7700

(212) 527-7701 (Fax)

Attorneys/Agents For Applicant